

# METHOD AND APPARATUS FOR CONTROLLING OPERATION OF DUAL MODE HCCI ENGINES

## Abstract

An intake and exhaust system for a dual mode HCCI engine, which provides superior intake temperature control and homogeneity for engine operation in SI and HCCI modes, as well as during transition between SI and HCCI modes and vice-versa. The system includes adjusted intake cam movement event lengths for intake valve operation at specified modes of operation. The system further includes at least one cam profile switching device operatively connected to intake and exhaust valves in an engine for controlling event length, maximum lift, and valve opening/closing timings for the intake and exhaust valves. The system yet further includes a bifurcated intake system and camless valve actuators for controlling intake valves for facilitating operation in SI or HCCI modes, as well as transition between SI and HCCI modes and vice-versa.